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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 33993-2024

Two dimensional code for commodity

商品二维码

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1 Scope

GB/T 33993-2024 is the Chinese standard for the commodity two-dimensional code, the QR code carried on retail products that resolves to product information rather than merely encoding a number. It is the bridge between the GS1 identification the world uses at the checkout and the scan-with-a-phone behaviour that dominates Chinese retail, and it only works if the data inside the symbol is structured the same way by every brand. The standard sets the codes and abbreviated terms, then the data structure of the commodity two-dimensional code, the identification of the product, the application identifiers and the additional data such as batch, serial number and expiry that may be carried, the URI form used when the code resolves to a web resource, and the rules for constructing it; and then the symbol requirements, the symbology, the size, the quality grade and the printing and placement requirements, together with the verification of the symbol. It takes effect on 1 July 2025.

This Document specifies the data structure, symbol representation and symbol quality requirements of two-dimensional code for commodity. This Document applies to the management and application of two-dimensional code for commodity.

2 Normative References

The provisions in following documents become the essential provisions of this Document through reference in this Document. For the dated documents, only the versions with the dates indicated are applicable to this Document; for the undated documents, only the latest version (including all the amendments) is applicable to this Document.

GB 12904 Bar code for commodity - Retail commodity numbering and bar code marking

GB/T 12905 Bar code terminology

GB/T 14257 Bar code for commodity - Bar code symbol placement guidelines

GB/T 16986 Bar code for commodity - Application identifier GB/T 18284 QR Code GB/T 21049 Han Xin code

GB/T 41208 Data matrix code

3 Terms and Definitions

For the purposes of this Document, the terms and definitions given in GB/T 12905 and the following apply.

3.1 Two-dimensional bar code; 2D code A bar code symbol that represents information in two-dimensional direction. [Source: GB/T 12905-2019, 2.3]

3.2 Two-dimensional code for commodity A two-dimensional code that uniquely identifies products and their attributes worldwide.

3.3 Application identifier Characters that identify the meaning and format of data. NOTE. Generally composed of 2 to 4 digits. [Source: GB/T 16986-2018, 3.1]

3.4 Indicator The first digit of the 14-digit Global Trade Item Code (excluding the digit 0). NOTE. It is used to distinguish different combination packages of the same trade item or to specify variable trade items. [Source: GB/T 36069-2018, 3.1.4, modified]

4 Codes and Abbreviated Terms

The following codes and abbreviated terms apply to this Document. AI. Application Identifier GS

1.Global Standards One GTIN. Global Trade Item Number HRI. Human Readable Interpretation POS. Point-of-Sale URI. Uniform Resource Identifier

5 Data Structure of Two-Dimensional Code for Commodity

5.1 Data structure type The data structure of two-dimensional code for commodity is divided into encoding data structure and URL data structure.

5.2.1 Composition of encoding data structure

5.2.3 Consumer product variant unit data string The consumer product variant unit data string shall consist of AI (22) and its corresponding data field. The consumer product variant data field is an alphanumeric string defined by the manufacturer, with a variable length and a maximum length of 20 characters.

5.2.4 Batch number unit data string The batch number unit data string shall consist of AI (10) and its corresponding data field. The batch number data field is an alphanumeric string defined by the manufacturer, with a variable length and a maximum length of 20 characters.

5.2.5 Serial number unit data string The serial number unit data string shall consist of AI (21) and its corresponding data field. The serial number data field is an alphanumeric character defined by the manufacturer, with a variable length and a maximum length of 20 characters.

5.2.6 Attribute information unit data string The attribute information unit data string is in accordance with Table A.1. The unit data string structure of more attribute information should comply with the provisions of GB/T 16986.

5.2.7 Unit data string sequence For the encoded data structure, its unit data string sequence in the bar code symbol is GTIN unit data string, unit data string with predefined length, and unit data string with non-predefined length. Among them.

- a) Unit data string with predefined length refers to a unit data string with a fixed length, such as the production date unit data string in Table A.1;
- b) Unit data string with non-predefined length refers to a unit data string with a variable length, such as the consumer product variant, batch number, etc. unit data string in Table A.1.

5.3 URL data structure

5.3.1 Composition of URL data structure The URL data structure consists of network service address (mandatory), GTIN unit data string (mandatory), qualifier unit data string (optional) and attribute information unit data string (optional), as shown in Table

2. According to different network service addresses, the URL data structure is divided into unified URL data structure and customized URL data structure. For URL data structures, the unit data string sequence in the bar code symbol is GTIN unit data string, qualifier unit data string, and attribute information unit data string. And.

- a) For the three types of unit data strings of consumer product variant, batch number and serial number in the qualifier unit data string, if more than two appear at the same time, they shall be arranged in the above sequence;
- b) When there are multiple attribute information unit data strings, there is no fixed sequence. It should follow the sequence of predefined length unit data string first and non-predefined length unit data string later; but the same attribute information unit data string shall not appear repeatedly.

6 Symbols of Two-Dimensional Code for Commodity

6.1 Code system The two-dimensional code for commodity shall use the two-dimensional code system with national standards such as Han Xin code, quick response matrix code and data matrix code, etc.; and shall meet the requirements of GB/T 21049, GB/T 18284 and GB/T 41208, respectively. Among them, when the encoded data structure is used for two-dimensional code symbol representation, the GS1 mode of the relevant code system shall be used for encoding. When the URL data structure uses Han Xin code, the URI mode of Han Xin code should be used. Application examples are shown in Appendix C.

6.2 Size The size of the two-dimensional code symbol for commodity shall be determined based on factors such as the encoding content, error correction level, reading device and system, and printing space, etc. If necessary, it shall be determined after conducting relevant adaptability tests. In a retail environment, a module size of

0.495 mm should be used; the minimum module size should be no less than

0.396 mm; and the maximum module size should be no greater than

0.990 mm.

6.3 Symbol position The basic requirements and placement rules of the two-dimensional code symbol position for commodity shall comply with D.1 and D.2 of Appendix D; and the position requirements for HRI characters shall comply with D.3.

7 Symbol Quality of Two-Dimensional Code for Commodity

7.1 Quality grade The quality grade of two-dimensional code symbol for commodity should be no lower than $1.5/x \times x/660$. Where,

1.5 is the symbol grade value; $x \times x$ is the reference number of the measurement aperture (different application environments, different measurement aperture sizes shall be selected; 12 is selected in retail environments); 660 is the measurement light wavelength, in nm, with an allowable deviation of ± 10 nm.

7.2 Quality inspection The quality of two-dimensional code symbol for commodity should be determined according to the following contents.

a) Check whether the encoding data structure complies with the provisions of

5.2 and Clause 6;

b) Check whether the URL data structure complies with the provisions of

5.3 and Clause 6;